



US007148772B2

(12) **United States Patent**
Sherrer et al.

(10) **Patent No.:** **US 7,148,772 B2**
(45) **Date of Patent:** ***Dec. 12, 2006**

(54) **COAXIAL WAVEGUIDE
MICROSTRUCTURES HAVING AN ACTIVE
DEVICE AND METHODS OF FORMATION
THEREOF**

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(*) Notice: Subject to any disclaimer, the term of this
patent is extended or adjusted under 35
U.S.C. 154(b) by 0 days.

This patent is subject to a terminal dis-
claimer.

(21) Appl. No.: **11/316,417**

(22) Filed: **Dec. 22, 2005**

(65) **Prior Publication Data**

US 2006/0164190 A1 Jul. 27, 2006

Related U.S. Application Data

(63) Continuation of application No. 10/793,574, filed on
Mar. 4, 2004, now Pat. No. 7,012,489.

(60) Provisional application No. 60/474,549, filed on May
29, 2003, provisional application No. 60/452,073,
filed on Mar. 4, 2003.

(51) **Int. Cl.**
H01P 3/06 (2006.01)

(52) **U.S. Cl.** **333/243; 333/244; 257/664**

(58) **Field of Classification Search** **333/244,**
333/243, 238; 174/117 AS; 257/664
See application file for complete search history.

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(57) **ABSTRACT**

Provided are coaxial waveguide microstructures. The micro-
structures include a substrate and a coaxial waveguide
disposed above the substrate. The coaxial waveguide
includes: a center conductor; an outer conductor including
one or more walls, spaced apart from and disposed around
the center conductor; one or more dielectric support mem-
bers for supporting the center conductor in contact with the
center conductor and enclosed within the outer conductor;
and a core volume between the center conductor and the
outer conductor, wherein the core volume is under vacuum
or in a gas state. Also provided are methods of forming
coaxial waveguide microstructures by a sequential build
process and hermetic packages which include a coaxial
waveguide microstructure.

20 Claims, 18 Drawing Sheets

